CHAPTER OVERVIEW

15: Nuclear Chemistry

Most chemists pay little attention to the nucleus of an atom except to consider the number of protons it contains, because that determines an element's identity. However, in nuclear chemistry, the composition of the nucleus and the changes that occur there are very important. Applications of nuclear chemistry may be more widespread than you realize. Many people are aware of nuclear power plants and nuclear bombs, but nuclear chemistry also has applications ranging from smoke detectors to medicine, from the sterilization of food to the analysis of ancient artifacts. In this chapter, we will examine some of the basic concepts of nuclear chemistry and some of the nuclear reactions that are important in our everyday lives.

Thumbnail: Part of carbon–nitrogen–oxygen (CNO) reaction chain diagram, made just to be illustrative for nuclear reactions in general. (CC BY-SA 3.0; Michalsmid via Wikipedia).